Effectiveness of Alternative Representations of Clinical Guidelines: Standard and Sparse Flowchart

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All knowledge support systems must choose a way to represent knowledge to the human user. Clinical guidelines are one type of knowledge support system. They may be distributed in paper form, or in electronic form.[1,2]

Most published clinical guidelines use a mixture of text, tables, and flowcharts for knowledge representation. Computer-based systems may embed guidelines within a support system (implicit representation), or they may represent the guideline as in paper systems.

Designers of knowledge support systems have little formal evidence supporting a particular representation for use by clinicians in practice. Studies of flowcharts, done in the 1970s, did not include expert "knowledge workers" in their study groups.[3] There is little evidence to favor a comprehensive detailed flowchart over a less complete, but briefer, flowchart.

In this poster we will present preliminary results from a study of two alternative representations of four clinical guidelines, as used by 20 family physicians to make management decisions for three case scenarios.

Methods

The guidelines to be studied cover the diagnosis of asthma and the management of back pain, urinary incontinence, and depression.

Each clinician will work through four case management problems. The response time for each problem will be limited to 3 minutes. The clinician will be asked to write their management plan as directed by the relevant guideline.

The guideline will be presented in one of two forms: comprehensive flowchart, and a single-surface "sparse flowchart". The sparse flowchart is intended to be quick to use, but it omits information that the physician is likely to know. The sparse flowchart deliberately sacrifices precision and comprehensiveness in favor of simplicity and presumed speed.

At the conclusion of the experiment, each clinician will have worked two cases with the sparse flowchart, and two other cases with the comprehensive flowchart. Each guideline-representation pair will have been examined ten times.

Analysis will include scoring the written responses, and Likert Scale assessments of physician's preferences. The results should help guide the explicit representation of knowledge for workplace use by expert knowledge workers.

Results

Results of the studies will be presented in the poster. Additional information will be available through the author's web site: http://dragon.labmed.umn.edu/~john/

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References

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[3]Kammann R. The comprehensibility of printed instructions and the flowchart advantage. *Human Factors* 1975;17(2):183-91.